UGANDA PROTECTORATE.

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ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE

YEAR ENDED 31ST DECEMBER, 1933.

(PART I).

PRICE: SHS. 3.

Published by Command of His Excellency the Governor.

ENTEBBE:

PRINTED BY THE GOVERNMENT PRINTER, UGANDA.

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DEPARTMENT OF AGRICULTURE.

ANNUAL REPORT, 1933.

(PART I).

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Deputy Director of Agriculture	Entebbe ...	2 ...	97
Head Office	Entebbe ...	2 ...	91
Senior Agricultural Officer	Kampala ...	281 ...	15
Agricultural Laboratories and Kampala Plantation	Kampala ...	265 ...	18
Botanic Gardens	Entebbe ...	60 ...	88
Jinja Office	Jinja ...	67 ...	101-105

Principal Experiment Stations:

(1) Kampala. (2) Serere, Teso. (3) Bukalasa, Mengo.
(4) Bugusege, Bugishu. (5) The Botanic Gardens, Entebbe.

Subsidiary Stations:

(1) Ngetta, Lango. (3) Wanyange, Busoga.
(2) Kamuge, Bugwere. (4) Kakumiro, Mubende.

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Plantation Managers :—

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Ploughing Instructor :—

J. K. Shepherd.

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Entomologist	G. H. E. Hopkins, M.A. (Cantab.), F.R.E.S.
Mycologist	C. G. Hansford, M.A. (Cantab.), F.L.S.
Senior Botanist	G. W. Nye, B.Sc. (Lond.), Dip. Agric. (Wye).
Agricultural Chemist	W. S. Martin, Ph.D., M.Sc. (Lond.), A.R.C.S., D.I.C., A.I.C.
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Laboratory Assistant	T. W. Chorley.

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Clerks :—

J. C. S. De Souza. M. A. S. Menezes.

F. C. De Souza.

DEPARTMENT OF AGRICULTURE.

ANNUAL REPORT

FOR THE YEAR ENDED 31ST DECEMBER, 1933.

PART I.

This part of the Report deals with the administrative side of the departmental activities and gives a review of the agricultural position of the Protectorate during 1933.

2. It is again pleasing to be able to record a substantial increase both in quantity and value in the exports of agricultural produce from the Protectorate during the year under review.

The following table indicates the progress which has been made in the more important products.

ARTICLES.	Unit of quantity.	1931		1932		1933	
		Quantity.	£	Quantity.	£	Quantity.	£
Cotton lint ...	*bale of 400 lbs. nett.*	188,920	1,503,307	207,326	1,584,172	294,828	2,682,210
Cotton seed	*ton.*	45,435	149,224	56,311	168,366	81,274	262,539
Coffee, raw	*cwt.*	69,990	161,389	87,077	223,162	100,444	210,638
Tobacco, manufactured ...	*lb.*	275	45	6,353	1,045	10,385	1,412
„ unmanufactured...	*lb.*	133,322	5,140	153,794	6,925	469,750	16,338
Cigarettes	*lb.*	46,474	12,345	67,300	18,190	49,890	13,378
Tea	*cwt.*	26	130	117	567	269	1,355
Sugar, refined... ...	*cwt.*	44,995	46,576	41,049	45,012	144,229	128,802

The total exports for the year were valued at £3,459,413 (at port of shipment), this figure representing a nett increase of £1,234,535 over the corresponding figure for 1932.

3. Weather conditions during the year were abnormal in most areas, the first half of the year being marked by a rainfall above the average, whilst a partial drought was experienced during the months of May, June, July and the early part of August. As these months cover the period when the bulk of the cotton crop is planted, considerable resowing was necessary and some anxiety was felt as to the effect on the crop. Conditions, however, improved markedly towards the end of the year, and a yield of cotton slightly over normal was expected at the end of the year.

4. Locusts of the hairy-chested species, although still present in the Protectorate, were not recorded as causing any appreciable damage to crops and no special measures to deal with the pest were considered necessary.

Notes on the Major Economic Crops.

COTTON.

5. (*a*) *1932-33 Crop.*—Buying opened on the 23rd January in areas east of the Nile with the exception of Busoga District, where the buying season commenced on the 6th February, the date fixed for the opening of buying in the Buganda Province.

An exceptionally heavy yield was recorded from most areas and this, coupled with the continuance of the rains during the picking season, led to a lowering of the grade of seed cotton at marketing. In some areas the grade was so low that prosecution under the Cotton Ordinance was instituted against buyers for buying below grade in the period stipulated for the marketing of "good" raw cotton only.

The returns of seed cotton purchased during the buying season amounted to 170,352 tons, equivalent to approximately 286,000 bales, of which the Eastern Province accounted for 77,986 tons, Buganda Province 70,924 tons, and the Northern Province 21,165 tons.

The actual number of bales exported during 1933 totalled 294,828, by far the largest crop so far produced.

(*b*) *1933-34 Crop.*—The following table gives details of approximate acreages planted in the various districts together with the comparative figures for the previous crop :—

	1932.	*1933.*
EASTERN PROVINCE.		
Busoga District ...	221,271	225,048
Budama „ ...	64,300	68,082
Bugwere „ ...	123,530	124,480
Bugishu „ ...	48,856	45,330
Teso „ ...	134,481	112,222
TOTAL ACRES ...	592,438	575,162
BUGANDA PROVINCE.		
Mengo District ...	157,668	164,022
Entebbe „ ...	86,924	106,037
Masaka „ ...	33,828	33,914
Mubende „ ...	39,891	46,905
TOTAL ACRES ...	318,311	350,878
NORTHERN PROVINCE.		
Lango District ...	83,183	78,736
Bunyoro „ ...	25,000	28,986
Gulu „ ...	22,300	21,033
Chua „ ...	18,000	18,000
West Nile „ ..	4,200	5,547
TOTAL ACRES ...	152,683	152,302
WESTERN PROVINCE.		
Toro District ...	5,505	12,160
Ankole „ ...	2,473	—
TOTAL ACRES ...	7,978	12,160
GRAND TOTAL ...	1,071,410	1,090,502

Dry weather conditions in May and June held up planting, and the proportion of late plantings was above normal. During September and October rainfall and temperatures were favourable, but dry conditions during November caused some anxiety. The crop in general, however, was singularly free from pests and disease, and a recurrence of rains in the first half of December effected a considerable improvement in the crop.

At the end of the year a forecast of 275,000 bales was considered justified.

The expansion of the area under S.G.29 was continued, seed of this variety being supplied from the Serere—Kasilo segregated area to the Bugwere and Bugishu Districts of the Eastern Province.

(*c*) *Pink Bollworm—Platyedra gossypiella.*—Although as stated above the crop in general was singularly free from pests and disease, efforts made during the past two years failed to prevent the spread of Pink Bollworm, and at the end of the year this pest had been found to exist in the following areas :—

Northern Province.—The West Nile, Gulu, Bunyoro and Lango Districts.

Buganda Province.—The Mubende District, and a small area of Mengo District along the south of Lake Kioga and contiguous with Bunyoro District.

So far as can be ascertained at the moment it would appear that in the areas affected, the introduction of this pest can be traced to the movement of seed cotton from certain markets in the Madi division of Gulu District to ginneries in the newly affected areas.

It is not unreasonable to suppose that had the zoning legislation, referred to later, been in operation five years earlier, the control of this pest would have been rendered more practicable.

With a view to retarding its spread, it is proposed to order the destruction of seed in the affected areas and to replace this with "clean" seed from areas where Pink Bollworm has not so far been observed.

It is believed that, in the drier northern areas of the Protectorate, the damage caused by this pest will not be heavy, but its spread into the wetter areas such as Buganda will probably prove a serious factor, as the conditions there existing are expected to prove more favourable for the pest.

Entomological investigations have established the fact that in certain areas and under certain conditions the resting larval stage occurs in the seed, but at present it is not known whether this stage is of a duration sufficiently long to enable the pest to carry over until the succeeding crop is vulnerable to attack. Should this be proved it may be necessary in certain areas to consider measures for the organised treatment of the seed by heat prior to its distribution for planting.

In the meantime it is considered that an intensive campaign to effect the early uprooting and burning of all old cotton plants should be undertaken, and the co-operation of the Administration is being sought in this direction.

In a country such as Uganda, where native agricultural production predominates, a strict attention to ordinary principles of crop hygiene is the only practicable measure of dealing with most of the diseases and pests which occur and it is becoming more and more evident that with the very large area now under cotton annually, our endeavours should be directed towards improving the arrangements for a strict close season for cotton.

(*d*) *Ginneries.*—Ginneries licensed to gin and bale cotton during the year were as follows:—

	Number of ginneries.
Indian	103
European	22
Japanese	9

a total of 134 as compared with 122 in the previous year.

(*e*) The arrangement referred to in my last report, whereby exports of cotton seed over the Kenya and Uganda Railways and Harbours were to be apportioned on a monthly quota basis worked very smoothly, and I should like to record my appreciation of the arrangements made by the Uganda Cotton Association which so successfully contributed to this satisfactory working of the scheme.

During the year the exports of cotton seed through Mombasa totalled 81,271 tons valued at £262,539.

(*f*) During the year, local transactions in baled lint were again numerous, 2,329 contracts, representing 321,554 bales being registered.

(*g*) In my report for 1932 I drew attention to certain undesirable features in the cotton industry and tabulated certain objectives which I considered should be aimed at in effecting a reorganisation of the industry with a view to reducing the present unduly high overheads borne in the marketing and ginning of the raw cotton.

This matter received the careful consideration of Government and as a first step in attempting to assist the industry, legislation was enacted which gave Government the power to establish zones within which raw cotton could move freely, but between which, movement except by head-loads or canoe-loads was prohibited. In so far as was possible these zones were established so as to coincide with quality zones, and in order to minimise the hardship which resulted to certain ginneries situated on the borders of these zones, special concessions were granted to certain of these "border" ginneries to collect cotton in the adjacent zone and move it to such ginneries for ginning. It was hoped that, by the division of the main cotton growing areas into such quality zones, the uneconomic transport of seed cotton would be reduced and the quality of the lint improved.

It was foreseen that such action would lead in many cases to the organisation of buying associations of ginning pools amongst ginners and in order that the interests of the growers might be safeguarded the legislation gave Government power to fix minimum prices to be paid for raw cotton in the various zones.

The new legislation will come up for review after a season's working.

It is probable as a result of the operation of the zoning legislation that, if the present zones prove satisfactory, consideration will have to be given to the question of a redistribution of ginning capacity between zones in order that the most effective use may be made of the existing ginning capacity.

Once such redistribution has been effected on an equitable basis, the next stage at which it is suggested that the industry should aim is the centralising of ginning in bigger units and a reduction in the number of ginneries whilst maintaining such former ginnery sites as collecting or buying centres.

Most of this reorganisation must, of course, be effected by the industry from within, but serious consideration is being given to the manner by which such reorganisation could be fostered by Government action.

Legislation was also introduced, designed to minimise the use of sticks for ramming cotton into gunny bags.

Arrangements were also made in the Eastern and Northern Provinces for stationing a native chief so as to give the growers a referee when the quality of their cotton might be in doubt. The object is, of course, to improve the grade, particularly in certain areas of these two Provinces.

COFFEE.

6. Details of the approximate acreages under coffee, both the arabica and robusta species, will be found in the appendices to this report.

It will be seen that a steady expansion in acreage has been maintained in native coffee growing.

During the first quarter of the year prices for all coffees, except the finer qualities, declined in sympathy with the falling values of Brazilian and Central American coffees, and this position was maintained until the end of the year.

The average price per cwt. realised for Uganda arabica in the London auctions during 1933 was Shs. 55/5 as compared with Shs. 67 in 1932 and Shs. 98/3 in 1929. With the resumption of the auctions in January of 1934, there was a considerable improvement in demand with a hardening of prices for all qualities and it is to be hoped that prices during 1934 will show a better return to the producer.

The lower price realised is reflected in the value of the coffee exported, for whereas the amount exported during 1933 totalled 100,426 cwts., being an increase of 13,349 cwts. over that exported during 1932, there was a decrease in the value of £12,527.

Arabica Coffee.

In the Bugishu District of the Eastern Province a steady expansion of arabica coffee growing is being maintained, approximately one million seedlings being distributed annually to native growers from central Government nurseries through Native Administration nurseries. At the close of the year the total area under arabica coffee in this district was estimated to be 3,527 acres.

The total crop for the 1932-33 season amounted to 734 tons of parchment coffee, and it is expected that the 1933-34 crop will be not less than 1,000 tons.

The improvement in the quality of the coffee produced under the Native Administration chain of pulping stations and central factory is being maintained.

During the year a small Board was set up comprising the District Commissioner, Bugishu (Chairman); the Deputy Director of Agriculture; Agricultural Officer, Bugishu, and two native members, who met periodically to advise on further developments in the Bugishu Coffee Scheme.

In the Ankole District of the Western Province the area under arabica coffee was increased by 796 acres, making an estimated total of 2,477 acres.

Organisation of the marketing of the crop in this area is under consideration. On account of lack of facilities for wet pulping, it is probable that sun-drying of the cherry and dry-hulling will be the method of treatment developed, and in such a case the organisation of marketing along the lines followed in Bugishu will not be possible.

Robusta Coffee.

With the exception of a small area in the Toro District of the Western Province and experimental plantings in the Busoga District of the Eastern Province and the West Nile District of the Northern Province, robusta coffee growing by natives is confined to the Buganda Province, and the bulk of this is centred in Mengo District.

A very rough estimate of the area under this crop in Buganda grown by natives is 16,800 acres and the production for the period 1st February, 1933, to 31st January, 1934, was 2,890 tons.

There is no doubt that robusta coffee growing by natives in Buganda is not at present on a satisfactory basis. Many of the plots previously planted up have been abandoned, many of the remaining plots are badly cultivated and mulching with plantain trash or elephant grass is not being practised in the majority of cases. It is fortunate that this species of coffee is not so seriously affected by lack of care as is the arabica species: but it is hoped, with the posting of members of the field division of the department to this Province, that steps will be taken to re-organise the industry at an early date.

Coffee Grading Ordinance.

This ordinance was in operation throughout the year, and had a beneficial effect on the grade of coffee exported. Early in the year the administration of the ordinance was reviewed by the Coffee Board, and the following resolution of the Board was submitted to Government:—

> "The Board is of the opinion that the Coffee Grading Ordinance has fully justified itself by the great improvement in the quality of native coffee exported from this Protectorate. The Board considers that the Ordinance should be continued and that no fundamental changes should be made but that certain minor alterations are desirable."

Following on this review, the Coffee Grading Rules were amended by the addition of a test for dryness and by redefining grades, the grades being amended to include F.A.Q., U.G. and Triage in both arabica and robusta.

TOBACCO.

7. The report of the Tobacco Officer will be found on page 23.

From this report it will be seen that production of this crop is being steadily increased.

With the controlled marketing established under the Native Produce Marketing Ordinance a high grade of leaf is being maintained.

The price which Uganda tobacco realises on the European market varies considerably and I am of the opinion that for successful development of the export trade it would be desirable to centralise sales through one agency. From reports received it would appear that Uganda leaf is attractive to merchants but it would also appear that at present it has not realised its full value in London.

During the year trial shipments of leaf were sent to the British American Tobacco Company, Messrs. Gallaher and Company, and Messrs. Jules Siemmsen, for valuation and report.

Experimental plantings were continued in the West Nile District, and it is now evident that, provided the native growers carefully follow out the instructions in cultivation and curing, a good type of fire-cured leaf can be produced.

During the year selection work and experimental work on fire-curing, air-curing and flue-curing was handed over to the Botanical section, and numerous varieties were introduced from other countries.

SUGAR.

8. The total acreage under cane on the two sugar estates, Lugazi and Kakira, remained fairly steady at 10,542 acres as against 10,250 in 1932.

The total production of refined sugar by these two estates amounted to 14,180 tons.

The position regarding local production and local consumption, to which I drew attention in my report for 1932, was not improved during the year.

Early in the year joint action was taken in the three territories under the Customs Management Ordinance, whereby importation of crushing and milling machinery or plant used in the manufacture of sugar was prohibited without special sanction having been obtained.

As local production is now greatly in excess of consumption, it is hoped that through this legislation the position will not become worse through an unduly optimistic firm or individual erecting still another mill somewhere in the three territories.

The fact is that the East African sugar industry is in a difficult situation, largely because the depression has prevented local consumption of sugar expanding normally and there is in consequence a heavy stock of sugar that has to be exported at a loss. I am strongly of opinion that the future of the industry lies in developing successfully the local market, that cheap sugar is essential for this purpose, and that present prices are not nearly low enough.

As the object of setting the industry on its feet again could be attained best through united action, I endeavoured, with the active co-operation of the Acting Director of Agriculture, Kenya, to devise a formula under which all producers might work together. The industry went to a great deal of trouble to make these efforts bear fruit and at the end of the year it can be said that although finality has not been reached, the main difficulties have been overcome.

I wish in this connection to record my warm appreciation of the loyal support that was given to these efforts by Mr. Nanji Kalidas and by Messrs. Vithaldas Haridas and Company, the two Uganda sugar producers.

DEVELOPMENT OF MARKETING OF NATIVE PRODUCE.

9. In my last report I made reference to the Native Produce Marketing Ordinance, which was enacted during 1932.

During the year under review this Ordinance was applied in the case of four specified native products, *viz.*, tobacco, coffee, groundnuts and simsim.

So far the Ordinance has been applied mainly by the issue of exclusive licences by the Governor.

Under these licences competitive marketing is eliminated and there is no doubt that in the marketing of produce, in which a high degree of quality is desired as in the case of tobacco and coffee, the elimination of competitive buying enables the grade of produce to be set at a higher standard. Experience in Uganda with all native produce shews that where marketing is uncontrolled and where there is in consequence a scramble at the place of sale, any attempt by the buyer to insist on a high standard of grading or quality at the time of purchase from the grower is immediately nullified by the fact that competitive buyers are willing to purchase rejected produce.

In the case of tobacco, where extension of the crop is being strictly limited to demand, the application of the Ordinance is proving particularly valuable, as before the crop is planted a market is assured for the whole of the crop, and by allotting certain definite areas to individual licensees, control of grade is rendered easy.

In the case of coffee, the Ordinance has so far been applied only in the case of the Bugishu Native Administration scheme, where the ultimate object is the formation of a native growers' co-operative association. In this case the application of the Ordinance has resulted in a definite improvement in the quality of the coffee produced, which is now reflected in the prices obtained for this coffee on the home market.

In the application of the Ordinance to oilseeds, groundnuts and simsim, two types of licence were issued. In the case of groundnuts, a Governor's licence was issued to one firm only, covering the area comprising the whole of the Eastern Province and the Lango, Chua and Gulu districts of the Northern Province.

A combination of unfavourable growing conditions, food shortage and low prices, resulted in a disappointing figure of total purchases.

The marketing of simsim in the declared areas, comprising the Teso District of the Eastern Province and the Lango, Gulu, Chua and West Nile Districts of the Northern Province, was organised on the basis of competitive buying under licences issued by the District Commissioner at declared market centres, and this system is to be continued in the present declared areas.

Prices for oilseed declined considerably during the year, prices for decorticated groundnuts declining from a value of £13 to £14 per ton in January, to £8 to £9 per ton in December. With the low price at present ruling no substantial development of an export trade in oilseeds can be expected.

AGRICULTURAL EDUCATION.

10. The report of the Superintendent of Agricultural Education will be found at page 20.

As mentioned in my last report, from experience gained since inauguration of a course for training in higher agricultural education based on the Makerere College, the course has been lengthened by the inclusion of a year's practical training prior to the students taking the final year.

The course as now designed follows closely the principles incorporated in most of the courses in being at the home universities and agricultural colleges, and with the standard of training now offered it can be definitely stated that no native of the Protectorate would gain any advantage by proceeding overseas for agricultural education purposes.

The small holdings scheme has been put into operation and is proceeding smoothly but it is too early as yet to say what the results are likely to be.

It is my belief that in the development of the native agriculture of the Protectorate along sound lines, the family is the unit around which any agricultural system must be developed, and the institution and development of a system of agriculture which will allow of permanent cultivation of small holdings operated by the family unit becomes of the greatest importance.

11. The usual willing assistance of the British Cotton Growing Association, Empire Cotton Growing Corporation, Royal Botanic Gardens, Kew, and the Imperial Institute is gratefully acknowledged, and to the members of the unofficial and official communities who have given up their time in serving on the various committees such as the Coffee Board, Plant Pests Board, Advisory Committee for the Development of Agricultural Production, Cotton Buying Committee, I would record my grateful appreciation.

12. In conclusion I should like to record my appreciation of the loyal co-operation of all members of the department in carrying out the programme of the department during the year.

I am also happy to be able to record the amicable relations and hearty co-operation which have been maintained with the Provincial Administration, upon whom must of necessity devolve the final promulgation of any policy which it is desired to pursue in developing to the fullest extent the agricultural resources of the Protectorate.

The help and co-operation of the Education Department in developing a system of agricultural education is acknowledged with pleasure.

J. D. TOTHILL,
Director of Agriculture.

ANNUAL REPORT ON AGRICULTURE IN THE EASTERN PROVINCE AND IN LANGO, GULU, AND CHUA DISTRICTS OF THE NORTHERN PROVINCE FOR THE YEAR 1933.

METEOROLOGICAL.

The distribution of the rainfall during 1933 was abnormal. January and February were unusually wet, while prolonged dry periods were experienced during the months of May, June and July. This reversal of the normal distribution was detrimental to cotton harvesting and marketing in the early part of the year, and retarded the sowing of the new season's crop to a marked degree. After July, rainfall was more normal, except that some areas received excessive falls of rain during August and September, *e.g.*, at Ngetta Farm, near Lira, over fifteen inches of rain fell during August, by far the heaviest fall on record for this month. During December, the rains were again unusually heavy, resulting in the lowering of grade of the cotton crop.

COTTON.

Marketing of the 1932-33 Season's Crop.—The total production of seed cotton for the area amounted to 95,744 tons, the highest figure yet reached.

The following table shews for each district the acreage under cotton, the tonnage of seed cotton purchased, and the estimated yield of seed cotton per acre, together with corresponding figures for the 1931-32 season for comparison.

District.	*Acreage.*		*Sales in tons.*		*Yield per acre in lbs.*	
	1931-32.	*1932-33.*	*1931-32.*	*1932-33.*	*1931-32.*	*1932-33.*
Busoga	137,887	221,256	30,698	38,633	498·7	391·1
Budama	37,299	64,300	6,026	9,068	361·9	315·9
Bugwere	112,039	123,530	11,583	13,241	231·6	240·1
Bugishu	47,592	48,775	3,599	4,393	169·4	201·4
Teso	115,626	134,481	9,546	12,705	184·9	211·6
Lango	52,483	83,183	6,143	12,520	262·2	337·1
Chua	12,248	18,000	472	1,882	86·3	234·2
Gulu	26,200	20,600	829	3,302	70·9	359·0
TOTALS ...	541,374	714,125	68,896	95,744	...	...

The buying season opened in all Districts on the 23rd January, 1933, with the exception of Busoga District where buying commenced on the 6th February.

After the first few days cotton came in steadily, and many markets were pressed for storage accommodation. Prices offered to the growers varied considerably during the first week, ranging from Shs. 6 to Shs. 12. The price then settled down to between Shs. 7 and Shs. 10. In the first week of March there was a sudden fall in price, but this had risen again to its former level by the end of the month.

The general grade of seed cotton from the 1932-33 crop was decidedly low. This can be attributed to three main causes:—

(*a*) the heavy late rains.
(*b*) an unusually large crop which the natives did not pick over sufficiently carefully.
(*c*) the unremittent use of lorries in all areas.

Owing to the general scramble for cotton, very little attention was paid to grade by the bulk of the buyers, with the result that the grower was under no obligation to sort over his cotton.

During February, 1933, the grade became so poor that action was taken against numerous buyers under Section 40 of the Cotton Ordinance.

1933-34 Season.

Cotton Seed Distribution.—In continuation of the approved scheme of distribution of seed of a new strain of cotton throughout the area East of the Nile, Bugishu and Bugwere Districts were supplied with seed of S.G.29 cotton for planting the 1933-34 crop. This seed was derived from cotton grown in the large Segregated Area of Kasilo and Serere Counties in Teso District during the previous season. Approximately 1,200 tons of seed were sent to the two districts mentioned.

Lango, Teso, Budama and Busoga Districts were supplied with seed grown locally.

In order to attempt to retard the downward spread of the Pink Bollworm, cotton seed from Lango District was transported to the more Southerly parts of Gulu and Chua Districts, a total of eighty-five tons of seed being sent for this purpose.

Planting.—As mentioned previously, weather conditions were, on the whole, very unfavourable during the period that the bulk of the crop should have been planted.

The following tables give the acreage of cotton sown per month in each District, and the percentage sown each month:—

Monthly Plantings in Acres per District—1933-34

District.	May.	June.	July.	August.	September.	Total 1933-34.	Total 1932-33.
Busoga ...	484	17,990	80,183	95,178	31,213	225,048	221,271
Budama ...	...	8,294	27,320	24,494	7,974	68,082	64,300
Bugwere ...	712	20,159	41,567	42,321	19,721	124,480	123,530
Bugishu ...	3	5,070	20,961	15,896	3,400	45,330	48,816
Teso ...	13,328	30,034	38,717	25,484	4,659	112,222	134,481
Lango ..	166	6,582	43,973	25,727	3,083	79,531	83,183
Chua ...	...	...	10,780	7,020	200	18,000	18,000
Gulu ...	...	15,800	4,950	...	...	20,750	20,600
Totals	14,693	103,929	268,451	236,120	70,250	693,443	714,181

Monthly Cotton Sowings as % of Total Acreage.

District.	May.	June.	July.	August.	September.
Busoga	2	8	35	41	14
Budama	...	12	36	40	12
Bugishu	...	11	46	35	8
Bugwere	0·7	16	33	34	16
Teso	12	27	34	23	4
Lango	0·2	8	55	32	4
Gulu	...	76	24	...	...
Chua	...	...	60	39	1

The second table shews that the monthly plantings could have been shifted back advantageously by a month to be nearer the optimum sowing date.

Traverses were again made in 1933 in each District at the end of November in order to form an estimate of the probable crop. Useful figures as to spacing in native cotton plots are obtained during the course of this work. Although the stand of plants per acre shewed signs of improvement, it is still only about one half of what it should be at the ideal spacing of three feet by one foot, but dry conditions during the planting period were responsible for a large part of the discrepancy.

Unless the late rains continue into the early part of December, September plantings may be disregarded from the point of view of yield.

Crop Prospects.—Prospects at the end of 1933 were good, despite the unfavourable planting season, but the total crop is not expected to reach that of last year.

Some rain fell during the middle of December, and this, while causing a small amount of unpicked seed cotton to become dirty, was too little to be of any real value to the late sown cotton.

There were indications that the grade would be considerably better than that of last year.

Pests and diseases of cotton caused but slight damage. *Blackarm* was nowhere dangerously present although this disease was rather widespread in Usuku County of Teso District. Damage by *Lygus* was moderate. *Cotton Stainers* and *Bollworms*, although present, were not so noticeable as in most years.

COFFEE.

Arabica Coffee.

Bugishu District.

At the beginning of the year under review, the Bugishu Coffee Scheme Board was instituted, to deal with all matters connected with the buying, treatment, and marketing of the crop purchased by the Native Administration. The members of the Board are the District Commissioner, Bugishu (Chairman), the Deputy Director of Agriculture, the Agricultural Officer, Bugishu, and two native members.

Marketing of the 1932-33 Season's Crop.—The total crop for the season July 1st, 1932, to June 30th, 1933, amounted to just over 734 tons of parchment coffee, as compared with 264 tons of parchment for the 1931-32 season. Of this 734 tons, 175 tons, or 23·77% of the crop, was purchased by the Bugishu Coffee Scheme. The bulk of this was shipped as clean coffee to England after being dealt with at the Bubulu factory.

The 1933-34 Crop.—The crop began ripening at the lower altitudes in mid-July, and at the higher altitudes at the end of September, picking being busiest during October and November.

There were fourteen pulping stations throughout the district to deal with the crop, *viz.*, at Buluchekke, Bududa, Bubulu Factory, Busano, Bunambale and Bumbo in the South Bugishu area; Sipi, Buginyanya, Bulago and Bulugenya in the North Bugishu Hill area; Makuyu, Buhugu, Buyobo and Buwalasi in the Siroko Valley area.

The crop was bought in the cherry at all the pulping stations mentioned above, except at Bumbo and Sipi where parchment only was bought.

Prices paid by the Bugishu Coffee Scheme for cherry were Shs. 1/20 per 4-gallon tin at the beginning of the season. This was reduced to Shs. 1/10 as from October 16th. These prices are equivalent to 21·24 and 19·46 cents respectively per lb. of parchment coffee. For coffee bought in parchment, Shs. 3/40 per full 4-gallon tin of 17 lbs. parchment were paid, *e.g.*, 20 cents per lb.

Prices paid by local buyers, other than the Bugishu Coffee Scheme, averaged 17 cents per lb. of parchment in November, and 14—18 cents per lb. parchment in December.

In explanation of the above it may here be said that an exclusive buying licence was granted during the year to the Bugishu Coffee Scheme in respect of the two following areas:—

(*a*) the whole of South Bugishu County.

(*b*) the hill gombololas of North Bugishu, *viz.*, Sabei, Sipi, Buluganya, Bulago and Buginanya.

The remainder of the District, *i.e.*, Central Bugishu and the Siroko Valley gombololas, remained open buying areas. In these areas, 49 licences were issued to local buyers.

To the end of December, 1933, the total crop purchased amounted to 807 tons of parchment coffee, of which amount 58% was purchased by the Bugishu Coffee Scheme. The crop purchased by the latter was larger than had been anticipated, with the result that the Bubulu factory was working at high pressure, especially during November and December, and was handicapped on account of inadequate drying facilities.

Various improvements were made to the inside of the factory at Bubulu during 1933 with a view to increasing its drying capacity. A cement barbecue and sheds were also constructed, and a galvanised iron store with cement floor.

In addition, a peaberry separator, long and short grader, and winnowing machine were installed in the factory.

Distribution of Coffee Plants, 1933.—After allowing for a mortality of 3% at planting-out time, it is estimated that 934,972 young plants established themselves in new plots, as compared with 751,299 in 1932. At the spacing of six feet by six feet, this represents an acreage of 773 planted in 1933, bringing the total acreage to date up to 3,527 acres.

The four central nurseries at Bubulu, Bunkoko, Makuyu, and Buginyanya provided slightly over a million young plants for the gombolola nurseries, the majority of the seedlings being transplanted into the latter during July.

Pruning and General Cultivation.—With the exception of the hill gombololas in North Bugishu, where the Single Stem system of pruning is still followed, all young plants are topped in the nurseries prior to distribution to the growers, so as to induce the formation of two stems, and from this stage, a modified multiple stem method is adhered to. Mulching of coffee plots, mainly with banana leaves, has been done more regularly this year than previously.

Pests and Diseases.

Stephanoderes.—The crop was again practically free from this pest, damage only being noticeable towards the end of the crop. It was necessary to stump over 2,000 trees during the year attacked by two varieties of *Stem Borers*. *Antestia* and *Cutworms* were present, but caused little damage.

"*Dieback*" during 1933 at low levels was more serious than usual, following after a heavy crop and dry conditions at the end of the year.

Robusta Coffee.

(*a*) Busoga District.

A small nursery for Robusta Coffee was commenced on the Native Administration Farm at Wanyange during 1932. Extra accommodation at Wanyange was provided during 1933, and nurseries were also opened up at Kamuli and Iganga. It is hoped that approximately 30,000 seedlings will be available from the earlier sown seed for distribution in the early rains of 1934. These seedlings will be given to selected natives at the rate of 50 plants per head.

Seed of selected Robusta Coffee strains from Kampala are also being grown on Wanyange Farm.

(*b*) Bugwere and Budama Districts.

Small observation plots of Robusta Coffee are being laid down at eleven centres in Bugwere, and five centres in Budama, to test the suitability of this crop in these two districts.

OIL SEEDS.

Groundnuts and Sim-Sim.

The estimated acreage of these two crops planted during 1933 is given in the following table:—

District.	Groundnuts.		Sim-sim.	
	1933—Acres.	1932—Acres.	1933—Acres.	1932—Acres.
Busoga	10,881	13,267	4,292	6,599
Budama	4,180	4,323	2,310	6,198
Bugwere	5,579	12,588	3,861	19,933
Bugishu	975	1,166	1,200	2,255
Teso	26,214	22,785	19,045	12,531
Lango	4,229	5,120	53,332	47,068
Gulu	No figures	available.	No figures	available.
Chua	do	do	do	do
TOTALS ...	52,058	59,249	84,040	94,584

Hopes were entertained that the acreage under groundnuts would largely increase in 1933 so that a considerable export trade could be established from the Eastern and parts of the Northern Provinces, and the above figures of acreage are disappointing, but the idea of markets in this commodity is still new to the native, and he has not yet learnt to put by an adequate seed supply for the coming year.

Dry weather conditions also were unfavourable to the establishment of the crop.

An exclusive licence under the Native Produce Marketing Ordinance was granted to Messrs. Baumann & Co., for the whole of the Eastern Province and Lango, Gulu and Chua Districts of the Northern Province, the minimum price to be paid being fixed by Government. Market centres were gazetted, and buying commenced in September. The total purchases amounted to less than 200 tons, the prices paid being four-and-a-half cents and two-and-a-half cents per lb. of shelled and unshelled nuts respectively. These disappointing sales are attributed partly to the bulk of the crop being retained for food by the growers, and partly to the unfavourable year for this crop. The low prices offered, as the result of the fall of prices on the home markets, undoubtedly discouraged natives from selling.

Teso, Lango, Gulu, Chua and West Nile Districts were gazetted as declared areas for Sim-sim, and market centres established in these Districts under the same Ordinance.

The markets were held rather late in the year in conjunction with Groundnut markets, and by this time much of the Simsim had been sold. In Teso District, where most was purchased, 121 tons were bought at an average price of five cents per lb.

Shea Butter Nuts (*Butyrospermum Parkii*).

This tree is met with in extensive belts in different parts of the Eastern and Northern Provinces, and yields fruits with a moderately high oil content. An experimental shipment of twenty tons was sent home to Europe again in 1933. The nuts were collected in North Teso, and were purchased at two-and-a-half cents per pound from local natives during June.

PLOUGHING.

Ploughing has increased satisfactorily during 1933, and the following table shews the total number of ploughs per District at the end of the year, as compared with 1932.

District.	Total Ploughs in use 1933.	Total Ploughs in use 1932.	Increase.
Busoga	123	101	22
Budama	43	41	2
Bugwere	4,145	3,712	433
Bugishu	40	20	20
Teso	9,913	8,280	1,633
Lango	365	223	142
TOTALS ...	14,629	12,377	2,252

No figures are available for Gulu and Chua Districts.

The increase in use of ploughs in Lango, Teso and Bugwere Districts is very marked. Progress in the other districts is slower, but it must be remembered that the preliminary clearing is considerably more heavy in Busoga and Bugishu than over the remainder of the area. When a native is unable to put up all the money required for a plough, it frequently happens that he combines with some of his friends to purchase one. The saving of labour, and the benefit accruing from deeper cultivation are points now realized by the native, and if he is not himself the possessor of a plough, he may pay a neighbour a small sum for ploughing his land.

The ordinary plough owner has not yet learnt the value of maintaining his plough in good condition by occasional overhauling and the buying of spare parts, although the latter are nowadays stocked in all districts. This frequently results in a plough being discarded merely because some replaceable part has been broken. It is part of the business of the native ploughing instructors who are employed in all districts to check periodically the condition of ploughs.

The services of an European Ploughing Instructor were available during the first quarter of the year.

A ploughing competition was held during October for the natives of Bugwere district, and the opportunity was taken to demonstrate the use of ox cultivators and harrows at the same time. The meeting was successful, and a number of chiefs from neighbouring districts attended.

A small number of one-ox cultivators have now been purchased privately by Chiefs.

Attention is being given to a modified type of plough which would be simpler to operate and, at the same time, would cost the peasant less to buy. There are certain parts of the ordinary plough in use which are redundant and which could be detached without impairing the work done. It it is hoped that the makers at home will be able to supply such a plough at a reduced price.

LOCUSTS.

The year 1933 has seen a very welcome reduction in the numbers of the Hairy-chested Locust, both as regards adult and immature forms.

Hoppers were fairly widespread during the early months of the year, especially in parts of Busoga District, and in Budama and Lango Districts. There appeared, however, to be a diminished vitality amongst these young Locusts, and a large percentage did not reach maturity. Satisfactory action was taken by the Chiefs in the location and destruction of eggs and in dealing with the young hopper bands.

Mature flying swarms have made spasmodic appearances in all districts but, taking the year as a whole, damage to crops has been very slight. Some damage was done to the Wimbi and Bunch Groundnut crops in their early stages.

EXPERIMENTAL WORK.

The results of all experimental work carried out in the area will be dealt with in Part II of the Annual Report.

N. S. HAIG,

Agricultural Officer.

ANNUAL REPORT OF THE SENIOR AGRICULTURAL OFFICER, WESTERN DIVISION.

STAFF.

In Buganda Province the Senior Agricultural Officer went on home leave in July and was away when the year ended; during his absence the Superintendent of Agricultural Education carried out necessary routine work.

An Agricultural Officer was stationed in the West Nile—Madi area and in the Toro District throughout the year. An Agricultural Officer was stationed in Ankole District until the end of March, from March until August supervision of this district was undertaken by the Agricultural Officer, Fort Portal. From August until the end of the year a Ploughing Instructor was stationed at Mbarara to carry out the Agricultural Officer's duties. The Tobacco Officer, Bunyoro, has reported on the progress of the tobacco industry in his district in a separate report.

GENERAL.

During the year it was decided that the Senior Agricultural Officer stationed in Kampala should supervise the work of all Officers of the Department west of the Nile.

Owing to the absence of the Senior Agricultural Officer on leave and the fact that no officer was available to take over from him it was necessary to hold over until 1934 any projected schemes of development which had been initiated in 1932. In so far as Buganda Province is concerned, therefore, there is but little to report. The notes given below as to the agricultural conditions in areas other than Buganda Province are taken from the annual reports of the Agricultural Officers concerned.

METEOROLOGICAL.

In Buganda Province the main feature of the year was the abnormally dry conditions which were experienced during June, July and the first two weeks of August.

In the West Nile District where there is a great variation in rainfall between the highlands, the central and the riverain areas, the weather during the year was only moderately suitable for all crops. In Toro district the total rainfall was 8·67 inches below the average for the last five years. Exceptionally dry weather was experienced in Ankole district during the months of June, July and September.

COTTON.

Buganda Province.

Cotton Acreage and Sales.

District.	*1931-32.*		*1932-33.*		*1933-34.*
	Acres.	*Tons.*	*Acres.*	*Tons.*	*Acres.*
Mengo	145,285	26,391	157,668	36,695	164,022
Entebbe	70,349	10,778	86,924	16,849	106,037
Masaka	39,090	5,134	33,828	9,493	33,914
Mubende	36,941	4,012	39,891	7,887	46,905
Totals ...	291,665	46,315	318,311	70,924	350,878

Cotton Season, 1932-33.—Conditions were on the whole favourable for planting in 1932. Dry weather was, however, general during July and as a consequence very little cotton was planted during that month. Rains in October and November were favourable for the growth of the crop, while another short spell of rains in middle December effected an improvement in the late sown cotton. Rains commenced again in the last week of January 1933, in the middle of the picking season and, for a time, looked like causing considerable damage. Fortunately, dry conditions set in again early in February and lasted until the end of the picking season.

The buying season opened on the 6th February, 1933, but, as is usual in Buganda, during the first two weeks very little cotton was offered for sale. Prices during the season averaged Shs. 9/79 per 100 lbs. of seed cotton and Shs. 3/19 for second quality compared with Shs. 11/33 and Shs. 3/07 in the previous season.

The crop totalled 70,924 tons, equivalent to 119,000 bales, compared with 46,315 tons in 1931/32. Average yields in pounds of seed cotton per acre were as under: Mengo 521, Entebbe 435, Masaka 629, Mubende 420. I am of the opinion that the actual yield per acre in Masaka district was not so high as the above figure indicates; it is probable that the acreage figures are incorrect.

Cotton Season 1933-34.—The planting season of 1933 was marked by dry weather conditions during the whole of June and July. In consequence, plantings during these months were small. August and September plantings were unusually large and the total acreage is estimated at some 350,000 acres—a marked increase on the previous season which was in itself a record. Dry weather was again experienced during November but abundant rains during the first half of December had an excellent effect on later plantings. At the close of the year the crop showed indications of being at least equal to the previous year in quantity and above the average in grade.

Pink bollworm was reported for the first time in Buganda during December. Indications showed that it was present over a considerable area, but by the end of the year the actual limits of its spread had not been determined.

Figures of cotton production in the other districts are as under:

District.	*1931-32.*		*1932-33.*		*1933-34.*
	Acres.	*Tons.*	*Acres.*	*Tons.*	*Acres.*
West Nile	5,050	64	4,200	412	5,547
Madi	4,200	102	5,900	736	5,033
Toro	4,847	120	5,505	277	12,160
Ankole	6,183	67	2,473	14	—

COFFEE.

Buganda Province.

District coffee beds have been maintained at 19 centres in Mengo district and at 20 centres in Entebbe district. There are also nursery beds at 36 centres in Mubende district and at 6 centres on the Sese Islands. The nursery beds have been supplied with seed throughout the year. The demand for seed has, however, been heavy and it has only been with great difficulty that adequate supplies of selected seed have been maintained.

The labour to work at the nurseries, as in previous years, has been supplied by the Native Administration.

Native growers have taken an increasing interest in the planting of "nganda" coffee.

Approximately 3,400 tons of native-grown hulled coffee were exported during the year, of which 2,710 tons were robusta and 690 tons were arabica.

Prices during the year were lower than in 1932 and averaged approximately 15—20 cents for robusta and 25 cents for arabica.

Six factories were licensed as public curing works under the Coffee Grading Ordinance, 1930. Of these, four were in Mengo District and two in Masaka District. The rules under the above ordinance were amended during the year as it was found that, in practice, the grades originally laid down were unsatisfactory.

West Nile District.

The experimental demonstration plots of both arabica and robusta withstood the dry season well. Additional plots were planted at Arivu and Adumi. As a result of the good results obtained from the experimental plots of arabica in the highlands, it has been decided that a start can now be made with coffee growing amongst natives there.

Preparations have been made to plant about 100 acres in 1934.

Ankole District.

There has been an increase in plantings of 196 acres during 1933 making an estimated acreage in the district of 2,477. Coffee sales during 1933 amounted to 104 tons, the average price paid being 24·82 cents per lb. *Antestia* has become prevalent in some parts of the district.

Toro District.

Some 2,692 plots of arabica and 2,106 plots of robusta are now established in the district, while 7,654 plots have been prepared for further plantings. Additional nurseries were made and planted during the year.

Demonstration plots have been maintained satisfactorily. In Bwamba, where robusta is grown, the most noteworthy features of the year have been the apparent successful establishment of the *Prorops* parasites of *Stephanoderes hampeii* and the renewed interest in coffee planting shown by the peasants.

TOBACCO.

A report on the progress of the tobacco industry in Bunyoro will be found in the report of the Tobacco Officer.

West Nile District.

The growing of a small acreage of fire cured tobacco at Koboko was continued in 1933. The crop from the 20 acres planted during the latter half of 1932 amounted to 5,036 lbs. of leaf. A further 20 acres were grown during the first half of 1933 but suffered from lack of rain and amounted to 3,253 lbs. During the latter half of 1933 a much larger crop was sown and over 500 growers planted about 130 acres. Picking started in December and at the end of the year there were 21 curing barns containing approximately 20,000 lbs. of leaf. In addition to the fire cured tobacco grown at Koboko it was decided to experiment with air curing tobacco at various places in the district. These trials have not yet been completed.

FOOD AND MINOR CROPS.

In Ankole District, particularly in Kashari and around Mbarara, where the soil is too poor to grow coffee, encouragement is being given to the growing of garlic and onions.

In Toro District, only two cases of food shortage were reported during the year and in general food has been plentiful. There was a very considerable increase in the acreage under beans.

In the West Nile District, there was no serious shortage of food during the year, but, especially during February, supplies were scarce.

MISCELLANEOUS.

The Muganda Agricultural Adviser to the Buganda Native Government, mentioned in my report for 1932, was appointed in 1933. It is as yet too early to state what the effect of this appointment will be, as during the first year it was necessary for him to obtain an intimate knowledge and the confidence of the chiefs and people.

A. B. KILLICK,
Senior Agricultural Officer.

ANNUAL REPORT ON AGRICULTURAL EDUCATION IN UGANDA DURING 1933.

The Superintendent of Agricultural Education's report on Nature Study and its application in the Elementary Schools will be found in the Education Department's Annual Report for 1933.

VOCATIONAL TRAINING IN AGRICULTURE.

(1) The training of youths as Smallholders.
(2) The training of Departmental Agricultural Instructors.
(3) The training of Agricultural Assistants at, and in connection with, Makerere College.
(4) Short courses in Agriculture for Chiefs.

(1) The Training of Youths as Smallholders.

During this year a start has been made with the training of youths in practical farming on a small scale, with the aim that at the end of the course they will go back to their home villages and put into practice what they have learnt.

For this purpose a number of model smallholdings have been established on the Bukalasa and Serere Plantations. The course of training on these holdings lasts for two years. The whole of the work of the holdings is done by the pupils, and this work is planned to teach the principles of good husbandry, the intelligent care of farm livestock, useful handicrafts (such as rough carpentry, the erection of farm buildings, etc.) and the hundred and one practical details of managing a small farm for profit. As conditions are rather different at the two centres each is treated below separately.

Bukalasa Smallholdings.—Two small farms have been established, one of twenty-one acres and the other of thirteen acres. The larger holding consists of twelve acres under a rotation of economic crops, three acres of bananas and one acre of other food crops; the remainder is made up of calf paddocks, tree plantation and homestead. Adjoining the farm, and included in the twenty-one acres, is three acres of *Robusta* coffee; this will form a part of the farm when the experimental work, in connection with which it is being used at present, is finished.

The buildings consist of two cattle kraals, a sheep pen, poultry house, store, implement shed and quarters for the pupils.

The stock kept on this holding comprises a team of six working oxen, four cows, a flock of twenty sheep and a pen of Rhode Island Red poultry.

The smaller, thirteen acres, holding has a lay-out similar to the larger one, except that there are only six acres of economic crops, and also that it carries no livestock, other than poultry.

The implements used on the larger holding include a plough, a small cultivator and an ox-cart.

There are ten pupils on the larger holding and seven on the smaller one. They are all natives of either Buganda or Busoga. The qualifications demanded for entry to the course are that they shall be strong, healthy youths of from 16 to 18 years of age and that they shall have passed through an Elementary School and thus be able to read and write in Luganda and possess a sound elementary knowledge of arithmetic.

The mornings are spent in doing the work of the holdings. After this, (*i.e.*, about mid-day) they spend an hour writing up the records and cash accounts of the holding. The afternoon is spent attending a lecture on some agricultural subject. In the evening they play football, or other games (some of the pupils are useful members of the Bukalasa troop of Boy Scouts).

The class (consisting of the pupils of both holdings) is under the charge of the Agricultural Officer who is in charge of educational work at Bukalasa. Working under him, and in immediate full time charge of the class, is a trained African Agricultural Assistant.

Serere Smallholdings.—Three holdings, each of twelve acres, were established in the early part of the year. Each holding has nine acres for economic crops and two acres for food crops, the remainder of the area is occupied by the homestead and trees.

Each holding has a team of six oxen, a plough, a small cultivator and a one-ox cart. There are also two cows and a small flock of poultry on each holding.

The buildings on each holding comprise a dwelling house (a simple two-roomed house, this being a slight but definite improvement on the ordinary native hut of the district), a cattle yard and shed, a store and implement shed, three native-type granaries and a poultry house.

Three pupils are accommodated on each holding and, of the nine, six are married and are accompanied by their wives (each family occupies a separate house). The same general qualifications are demanded as for the Bukalasa pupils, with the exception that a knowledge of Kiswahili is required. The training of married pupils with their wives is at present experimental, and its desirability will be reviewed at the end of the present course.

The general course of training is roughly the same as at Bukalasa. The mornings are occupied with work on the holding and the afternoons with a lecture. A very large amount of the practical work, as at Bukalasa, is educational and there are hundreds of small details of practical farming that can be taught in a course such as this that do not find their way into an ordinary syllabus.

Smallholdings Schemes under Mission Authorities.—During the year both the Church Missionary Society and the Verona Fathers' Mission received grants from Government to establish farm schools; the former at Namutamba in the Buganda Province and the latter at Gulu, in the Northern Province. Each of these schools will consist of a number of small holdings; those at Namutamba being modelled rather on the line of the Bukalasa holdings and those at Gulu being similar to the Serere holdings. Both Missions appointed a European headmaster, with farming experience, for their school during the year and had made considerable progress in the laying out of holdings and the erection of buildings. It is hoped that both schools will be ready to receive pupils early in 1934.

(2) The Training of Departmental Instructors.

A two-months' course for departmental instructors was held at Serere from February 2nd until April 1st and was attended by thirty-three instructors and pupil instructors from the Eastern and Northern Provinces. This was a simple course including the principles of good husbandry, the identification of the common pests and diseases of cotton and other crops, plot measurement, and the writing of simple reports.

(3) The Training of African Agricultural Assistants at, and in connection with, Makerere College.

As was foreshadowed in last year's report, the Makerere College Agricultural Course was, this year, increased in length from three to five years. The course, under the New Regulations is as follows:—

First Year (at Makerere College).—Continuation of general education.

Second Year (at Makerere College).—

Pure Science—Physics.
Chemistry.
Botany.
Zoology.
Mathematics.
English.

Third Year (Pupils in residence at Makerere College, but instruction given by the staff of the Agricultural Department, except in Surveying and Bookkeeping).—

Pure Science—Plant Physiology.
Animal Physiology.
Applied Science—Agricultural Chemistry.
Agricultural Botany.
Simple Surveying.
Book-keeping.
Elementary Agriculture.

Fourth Year.—To be spent on the two principal Government Experiment Farms (Bukalasa in Buganda and Serere in the Eastern Province). During this year the instruction will be entirely practical and, as opportunities allow, the students will accompany Agricultural Officers on tour. Students will have to obtain a satisfactory certificate from the Officer in charge of the station before being allowed to proceed to the fifth year of the course. Failure to obtain this certificate will entail a further year's practical work.

Fifth Year (Pupils again in residence at Makerere College, but instruction given by the staff of the Agricultural Department).—

Advanced Agriculture, including plant and animal breeding.
Experimental Agriculture.
Agricultural Mycology.
Agricultural Entomology.
Diseases of Stock.
Economics.

In this year students will be expected to carry out a simple agricultural experiment on approved lines and to submit a paper on it as a part of their final examination.

The third year class consisted of seven pupils (one Mugishu, one Mutoro and five Baganda). This class attended lectures and demonstrations at the Agricultural Laboratories, Kampala, and on the Kampala Plantation. Their progress during the year was sufficient to justify their proceeding to the fourth year of the course.

Owing to the change over from the old to the new Regulations, this was the only class receiving instruction from this Department during the year.

(4) Short Courses in Agriculture for Chiefs.

A three months' course was held at Bukalasa from the 11th September until the 2nd December. This was attended by two Gombolola and ten Miruka chiefs from Busoga and seven Miruka chiefs from Buganda. The syllabus included the principles of good husbandry, crops and crop estimation, the working of small holdings, plot measurement, and the agricultural side of a chief's work. The class took a keen interest in the course and I think that their work as chiefs will be benefited thereby.

GENERAL.

I attended meetings of the Advisory Council on Native Education, the Buganda Provincial Education Council and the Mengo and Entebbe District Education Boards during the year.

Parties of pupils from various schools near Kampala were taken round the Kampala Plantation and the Museum of Agricultural Laboratories at various times during the year.

Examinations conducted during the year have included Junior Secondary Schools (Biology) and Normal Schools (Nature Study) and examination papers in Nature Study and school gardening were set for all Elementary and Normal Schools.

In conclusion, I have much pleasure in acknowledging the very real help and cooperation of the Honourable the Director of Education and the members of his staff throughout the year; and also the kindness of the Director of Veterinary Services in giving advice and help in obtaining stock for the small holdings and for allowing his officers to give occasional lectures.

E. G. STAPLES,

Superintendent, Agricultural Education.

ANNUAL REPORT OF THE TOBACCO OFFICER, 1933.

Mr. Hazel was in charge of all work in Bunyoro until my return from leave in July.

2. The development of tobacco growing as a native crop continues to make progress. The acreage planted by natives was approximately 1,700 acres, from which a total crop of 768,804 lbs. of cured leaf was marketed in September—October.

3. In connection with the native crop it is pleasing to record that most of the chiefs in Bunyoro are now taking a keen interest in increasing cultivation of all crops and, with the tobacco crop, have been of great assistance in encouraging their people to carry out instructions and endeavour to improve the quality of the crop.

One of the greatest difficulties experienced is to get the growers to look ahead and have their nurseries, plots and curing sheds ready at the right time.

It cannot be too strongly emphasised that all operations in connection with tobacco growing must be carried out to time if the best results are to be obtained. A little delay at sowing time owing to beds not being ready or shading materials not collected, renders the crop far more liable to hail damage late in the season and, by delaying harvest, makes curing difficult owing to unfavourable weather conditions likely to be experienced towards the end of July and early August. Delay at planting time often caused through clearing and cultivation not being taken in hand in time, causes loss owing to the plants becoming too large in the nurseries and consequently receiving a big check when transplanted from which they often do not recover. Probably the greatest loss is caused through curing sheds not being built or repaired in time to receive the crop and a great deal of the leaf being allowed to become over-ripe before it can be harvested and the greatest difficulty is experienced in persuading the growers to take this job in hand before it is too late.

It is with matters of this kind that the local chiefs can be of the greatest assistance and, with a few exceptions, they have given real help.

Apart from the actual cash value of the crop, the tobacco growing industry now benefits the district by providing employment for some three hundred people for roughly three months in re-handling the tobacco purchased from the native growers—work which is becoming popular with the Banyoro.

4. Throughout the season weather conditions were extremely difficult and the partial failure of the rains in April was responsible for heavy losses at planting time.

Considerable re-planting was necessary and the plots were, consequently, very uneven, which made harvesting and curing a long and tedious process.

A spell of unusually hot weather during July, when harvesting had commenced, caused considerable loss owing to the leaf drying out too quickly in the barns.

Hail caused a lot of damage about the end of June just before the leaf was ready for picking, and this was responsible for a large proportion of the leaf being classed as No. 2.

5. The crop was again remarkably free from disease or serious pests.

Cut-worms and Crickets did a certain amount of damage amongst the newly planted tobacco in April and May, but the native growers are generally quite good at catching and destroying these insects and although the loss of plants is sometimes quite large, the actual loss to the individual grower is not so serious as it would be if the tobacco was grown under large plantation conditions when re-planting would become an expensive item.

Poison baits for these pests are, under the circumstances, out of the question, and traps, when they are used, are generally neglected so that any cut-worms which may be attracted get away to carry on their destructive work and, generally speaking, it is only when the grower can actually see that damage is being done, that he will take any active steps to destroy the pests.

The Stem-borer (*Phthorimaea heliopa, Lwr.*), was rather more numerous than usual but weather conditions appear to be the chief factor with regard to the presence of this insect and it is not regarded as likely to become a serious pest.

The Bud-worm (*Chloridea obsoleta*), was not so numerous during the past season and no cases have yet been observed of this caterpillar attacking the leaves. Damage is confined entirely to the seed heads.

Cases of "Curly Leaf" were comparatively few, probably owing to weather conditions being unfavourable for the fly which is responsible for spreading this disease.

"Mosaic" caused a certain amount of loss.

An unidentified leaf-spot disease attacked seedlings in several nurseries but by isolating the infected areas and spraying with Acetate of Copper, the infection was confined to a limited area and the disease was not carried into the fields.

6. The price to the growers was fixed at twenty-five cents per lb. for No. 1 grade and fifteen cents for No. 2, a reduction of two cents from the previous year.

Exclusive buying licences for the purchase of tobacco leaf in Bunyoro were issued to four buyers who were required to pay a cess of two cents per lb. on all tobacco purchased. The money so collected is paid into a fund to be used for the development of the tobacco growing industry in Bunyoro.

The quality of the crop was very satisfactory and, in spite of the fall in prices, growers were fairly well satisfied with the return obtained.

Growers received a total of Shs. 147,610/10 cts.—an average of 19·19 cents per lb.

7. There has been a large increase in the demand for Bunyoro tobacco by local manufacturers and the greater part of the crop was re-sold locally.

Prices on the Home market have not been encouraging and there was a slight reduction in the amount of last season's tobacco shipped to England.

Several enquiries have been received from interested firms in the United Kingdom and it should be possible to arrange prices satisfactory to both buyers and shippers, but when buyers in the United Kingdom will only take "wrapper" grades, shippers who purchase the leaf from the growers and re-handle it for export and who, under the terms of their buying licences, must accept all leaf which has been properly cured and graded, run a considerable risk of having the lower grades left on their hands and can only sell their top grades at prices which will cover them in the event of the lower grades being left.

8. The following figures of imports of Uganda tobacco into the United Kingdom are taken from Messrs. Edwards, Goodwin & Co's. Monthly Reports:—

1932.		*1933 (Jan.—Oct.).*	
Leaf.	*Strips.*	*Leaf.*	*Strips.*
56,771 lbs. ...	36,199 lbs.	94,841 lbs. ...	18,923 lbs.

Figures of deliveries of Uganda tobacco for home consumption in the United Kingdom taken from the same source are:—

1932.		*1933 (Jan.—Oct.).*	
Leaf.	*Strips.*	*Leaf.*	*Strips.*
90,031 lbs. ...	21,300 lbs.	118,385 lbs. ...	7,719 lbs.

These figures include a certain amount of Plantation grown tobacco.

In November, reports from London indicated that all stocks of Uganda leaf there had been cleared, but a fair stock still remained unsold at Liverpool at the end of the year.

The total export of tobacco (leaf and strips) from Uganda for 1932 was 153,794 lbs. and for the first eleven months of 1933 (the latest figures available at the time of writing), 406,079 lbs.

9. There was a considerable reduction in the acreage under tobacco on European estates, the total acreage grown being estimated at under 150 acres.

10. The small Packing Factory erected by Government at Masindi was working for four months during the year (January, February, November and December), and during that time approximately 77 tons were handled.

It is satisfactory to note that brokers and manufacturers have commented upon the improved condition in which Uganda tobacco is arriving on the Home market and no complaints have been received on any of the leaf which has passed through the Government Packing Factory.

11. Work at the experimental grounds at Bulindi has been confined chiefly to the production of true strains of seed of the different varieties required for blending purposes by local manufacturers and of the two varieties (Blue Pryor and Western) which are mostly in demand for export.

Fertilizer trials were carried out under the direction of the Agricultural Chemist and rotation experiments commenced in 1932 were continued.

Some excellent samples of air-cured leaf were produced.

12. One African Agricultural Assistant and eight native Instructors were employed in supervising the native crop in Bunyoro during the year.

G. T. PHILPOTT,

Tobacco Officer.

Appendix No. 1

IMPERIAL INSTITUTE,
LONDON, S.W. 7.

L. 791/2.

REPORT ON VANILLA FROM UGANDA.

The sample of vanilla which is the subject of this report was forwarded to the Imperial Institute by the Director of Agriculture, and is referred to in his letter No. 2785/350 of the 30th September, 1933.

Description.

The sample weighed 9¾ oz. and consisted of very dark brown pods, which were firm and in good condition, and uniformly about 6¾ inches in length by about 5/16 inch in width. Crystals of vanillin were present on all the pods.

The odour of the pods was pleasant and well marked, and the sample was much superior to the previous samples from Uganda examined at the Imperial Institute (see report dated 11th February, 1932). In comparing the present material with the previous samples, however, it was noted that the latter had improved in odour after 21 months' storage and on several the vanillin had crystallised to an appreciable extent.

Commercial Value.

The sample was submitted for valuation to a firm of importers in London who expressed the opinion that the pods had deteriorated since packing owing to a certain amount of "dry curing" taking place during transit. They considered, however, that vanilla of this class would be similar to that produced in Reunion and Madagascar, and could be marketed at 4s. to 5s. per lb. At the time of this report Bourbon (Reunion) vanilla was quoted in London at 4s. to 9s. per lb. for Good to Fine pods.

Remarks.

The present pods are of uniform length and satisfactory aroma and consignments of similar character would be marketable in London. Pods intended for the United Kingdom market should be between 6 and 8 inches in length, the longer pods realising the higher prices, and when packing commercial consignments it is a good plan to wrap the bundles in tinfoil.

8TH DECEMBER, 1933.

IMPERIAL INSTITUTE,
LONDON, S.W. 7.

O. 2324/2.

REPORT ON VETIVER ROOTS FROM UGANDA.

The sample of vetiver roots which is the subject of this report was forwarded to the Imperial Institute by the Director of Agriculture, and is referred to in his letter No. 239/350 of the 23rd January, 1933.

The roots were stated to have been obtained from a plot planted in November, 1930, and dug in August 1932, and it was desired to ascertain their quality and commercial value as a source of oil.

Description.

The sample weighed 14 lbs. and consisted of pale yellowish-brown roots, almost entirely free from rhizomes, and having the characteristic odour of vetiver. The roots were of somewhat paler colour than the previous sample from Uganda dealt with in Imperial Institute report of the 9th June, 1931.

Results of Examination.

On steam distillation the ground roots furnished 1·8 per cent. of a dark reddish-brown, viscous oil, as compared with a yield of 1·2 per cent. from the sample examined in 1931. The oil was found to have the following constants, which are shewn in comparison with the figures obtained for the previous sample and with those recorded for vetiver oil distilled in Europe from dried roots and for that produced in Reunion:—

	Specific Gravity at 15·5/15·5°C.	Optical Rotation, aD.	Refractive Index, nD20°C
Present Sample	1·0383	... Too dark to obtain reading	... 1·5248
Previous Sample	1·0477	... Too dark to obtain reading	... 1·5222
European distilled oil	... 1·014 to 1·040	... +25° to +38°	... 1·5210 to 1·5270
Reunion oil	... 0·980 to 1·020	... +15° to +37°	... 1·5150 to 1·5280

The distillation of the present roots was conducted under the same conditions as those adopted in the case of the sample from Uganda examined in 1931 and the material was practically exhausted of the essential oil. The roots are therefore of better quality than the

earlier sample in that they furnished a higher yield of oil. The oil possessed a fairly good aroma, and in this respect closely resembled the oil from the previous sample. Its physical constants were moreover similar, and corresponded with those of oil distilled in Europe from dried vetiver roots.

Commercial Value.

Samples of the roots and of the oil distilled at the Imperial Institute were submitted to two firms of essential oil distillers in London, who furnished the following reports:—

(*a*) "Regarding the sample of oil which you sent to us, we passed this on to our laboratory, and they reported that the odour compares very favourably with English-distilled oil which we have in stock and is much superior to the samples of imported oil. If this oil could be produced on the spot in Uganda there might be some possibilities for it, but in any case the amount of vetiver used is not very great. Most of the oil is imported from Java and Bourbon and sold at a price with which we cannot possibly compete: in small quantities the former is realising about 25s. per lb. and the latter about 15s. per lb."

"We have in stock vetiver oil which we distilled a good while ago, but are quite unable to sell it for the reason stated above. The cost of distillation of this root, as you will realise from your experimental work, is very high so that the value of the raw material is necessarily small."

(*b*) "Our laboratory have now had the opportunity of examining the sample of vetiver oil distilled at the Imperial Institute from roots received from Uganda. This oil has a specific gravity of 1·0383 and refractive index of 1·5248 with an acid value of 76·7 per cent. and an ester value of 22·7 per cent. It is soluble in 1 volume of 80 per cent. alcohol, but clouds on further addition of 80 per cent. alcohol and does not clear in large excess."

"The sample is certainly fine quality oil, but it is probable that oil distilled in Uganda would not be of equal quality; in our opinion, however, it should find equal favour with the Bourbon and Java oils of the same type."

A firm of brokers who had recently offered a consignment of vetiver root at auction were also consulted. They reported that the demand for the root in London is very limited at the present time, and that although there has been a small trade in Indian supplies at 20s. per cwt. it is difficult, even at this low price, to interest buyers in any large quantity of material.

Remarks.

The present roots furnished more oil than the previous sample from Uganda, but the yield of 1·8 per cent., although probably equal to that obtained from some of the consignments of vetiver root distilled commercially in Europe, is only a little more than half that obtained from the best sample of roots previously examined at the Imperial Institute and much below the highest yield (about 4 per cent.) recorded in Java. It would moreover not prove economical in practice to obtain from the roots the total content of 1·8 per cent. of oil, as a stage in the distillation would be reached at which the oil would distil over so slowly that the value of the extra amount of oil obtained would not compensate for the cost of the steam required to produce it and the labour involved in extracting the oil from the large volume of aqueous distillate. In view of the comparatively small yield of oil obtainable and the difficulties connected with the distillation of vetiver oil it seems doubtful whether roots of the quality of the present sample could be profitably distilled in Uganda. It also appears unlikely that the dried roots would be readily saleable in the United Kingdom at a remunerative price.

June, 1933.

REPORTS ON GROUNDNUTS AND ASCLEPIAS FLOSS.

During the year, in addition to the reports published in full in this Appendix, the advice from the Imperial Institute was sought on the following matters.

(a) Groundnuts.

Consideration was given to the possibility of reducing the freight charges on groundnuts by shipping in bales as against the normal method of shippings in bags.

With the kind assistance of Messrs. East African Ginneries, Limited, three bales of undecorticated groundnuts, pressed in an ordinary Krupp's cotton baling press with a fixed steel box, were prepared, varying pressures being used.

Details of the bales were as follows:—

(1) Weight: 652 lbs. of unshelled nuts.
Capacity: 16½ cubic feet.
Pressure 2,700 lbs. per square inch.

(2) Weight: 400 lbs. of unshelled nuts.
Capacity: 13½ cubic feet.
Pressure: 1,774 lbs. per square inch.

(3) Weight: 500 lbs. of unshelled nuts.
Capacity: 14 cubic feet.
Pressure: 2,700 lbs. per square inch.

In addition, 344 lbs. of shelled groundnuts were shipped in the normal way in bags.

The Imperial Institute was asked to advise on such points as the comparative analysis of the samples, comparative value of the products, and the probable demand for baled groundnuts.

A very full report was received from the Imperial Institute, and the result of the experiment indicates that if the unshelled nuts are pressed to a density sufficient to enable them to take advantage of the reduced ocean freight based on the 40 cubic feet per ton rate, oil is expressed from the kernels. The oil thus liberated develops increased acidity, with the result that the free fatty acid content of the total oil rises well above the desirable limit of 2 per cent. This abnormal acidity would cause a high loss on refining.

It is stated that there will probably be no difficulty in disposing of baled groundnuts provided (*a*) that a suitable pressure is used in baling, thus preventing an increase in the acidity of the oil; (*b*) that the packages are bound with cord and not with wire or hoop iron; and (*c*) that they do not weigh more than 2 cwts.

It would therefore appear that taking all the factors into consideration, it is more economical to decorticate the groundnuts in Uganda and to export kernels only.

(b) Asclepias Floss.

A sample of 4 lbs. of the fibres attached to the seed in the capsules of *Asclepias semilunata* was forwarded to the Imperial Institute for valuation and report.

The following is quoted from the report from the Institute:—

"Flosses of the type of the present material are employed in the United Kingdom principally as cheap substitutes for kapok in stuffing upholstery. The resilience of Asclepias floss is inferior to that of Java kapok and more resembles that of the Indian material known commercially as "Akund," which is the floss of *Calotropis procera* or *C. gigantea*.

As indicated in the commercial reports the market value of the floss is much lower than that of Java Kapok (6½d. to 7d.), and it is a question whether a price of 3d. to 4d. per lb. in London would be sufficient to render remunerative the export from Uganda of such a light bulky material. It is undesirable that flosses intended to be used for upholstery purposes should be tightly compressed in bales as this adversely affects their resiliency."

From the report it is evident that at present prices production and export of Asclepias floss is not an economic proposition.

Native Agriculture—Estimate of Approximate Acreages of Crops under Cultivation, 1933.

Province and District.	Plantains.	Potatoes.		Millets.		Cotton.	Coffee.		Simsim.	Ground-nuts.	Chillies.	Maize.	Rice.	Wheat.	Beans.	Peas.	Potatoes.	Sugar Cane.	Cassava.	Miscel-laneous Crops.
		Sweet.	English.	Mtama.	Wimbi.		Robusta.	Arabica.												
	ACRES																			
UGANDA :—																				
Mengo	300,000	78,000	2,000	2,100	950	164,022	8,500	150	5,000	14,000	70	5,000	...	...	15,000	..	...	...	75,000	3,000
Entebbe	92,000	27,000	1,000	1,800	..	106,037	5,000	400	700	5,000	300	2,000	...	...	18,000	500	800	500	19,000	..
Masaka	66,000	12,000	300	1,000	800	33,914	5,000	2,000	800	10,000	800	4,000	..	..	9,000	800	...	200	10,000	...
Mubende	49,481	74,000	300	3,000	10,000	46,905	3,800	300	5,000	10,000	...	2,000	...	...	10,000	...	...	400	40,000	...
TOTAL ...	507,481	192,000	3,600	7,900	11,250	350,878	16,800	2,850	11,000	42,000	670	13,000	...	...	52,000	1,100	800	1,100	144,000	3,000
EASTERN :—																				
Busoga	33,906	19,764	6	6,890	49,848	225,048	4	...	4,292	16,496	6	8,834	1	...	18,149	42	2	490	...	...
Budama	35,036	10,304	...	6,785	20,000	68,082	...	...	3,861	4,180	...	287	...	...	14,874	...	3	132	21,007	...
Bugwere	50,000	14,730	...	808	90,747	124,480	2	8	2,310	5,635	...	750	12	...	30,434	22	...	24	11,544	1,477
Bugishu	145,684	19,618	962	5,948	37,027	45,330	...	3,526	1,197	974	31	5,250	...	...	14,627	610	28	465	20,000	...
Teso	2,725	48,141	...	76,852	168,079	112,222	...	...	27,571	28,911	...	911	17	...	43,198	...	6	219	27,543	...
Karamoja ...	...	400	...	13,000	1,000	...	...	...	400	500	...	10	...	...	100	...	500	...	10	...
TOTAL ...	267,351	112,957	968	[illegible]	36,[illegible]1	575,[illegible]2	4	3,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
NORTHERN :—																				
Lango	177	13,085	...	47,200	92,164	78,736	...	...	33,332	4,229	...	659	...	...	10,650	...	...	...	10,469	...
Bunyoro	10,000	30,000	1,140	10,000	20,000	28,986	172	...	20,000	6,000	...	2,000	...	...	15,000	5,000	1,685	...	25,000	...
Gulu	485	29,615	36	6,310	21,079	21,033	1	...	17,492	5,000	...	290	77	...	7,733	...	71	197	25,843	...
Chua	...	2,000	...	9,500	80,000	18,000	...	...	30,000	4,000	...	...	...	...	2,600	...	...	...	11,000	...
West Nile ...	150	30,000	150	60,000	100,000	5,547	4	12	50,000	5,000	20	200	100	...	30,000	10,000	340	100	30,000	100
TOTAL ...	10,812	104,700	1,326	133,010	313,243	152,302	177	12	150,824	24,229	20	3,149	177	...	65,983	15,000	2,096	297	102,312	100
WESTERN :—																				
Toro	55,575	6,755	136	153	20,837	12,160	277	350	258	2,251	...	3,000	1,365	160	23,189	3	6	12	1,175	...
Ankole	31,000	30,114	57	10,826	35,484	148	...	2,477	13	897	...	5,934	6	...	18,470	3,991	574	...	405	...
Kigezi	500	50,000	150	50,000	50,000	...	...	300	20	50	...	2,000	5	10	35,000	20,000	10	25	250	...
TOTAL ...	87,075	86,869	343	60,979	105,821	12,308	277	3,127	291	3,198	...	10,934	1,376	170	76,659	23,994	590	37	1,830	..
GRAND TOTAL ...	872,718	496,526	6,287	312,172	792,015	1,090,650	17,260	9,528	201,746	126,128	727	43,073	1,583	170	331,024	40,768	4,025	2,764	328,246	4,577

TOTAL ... 4,681,930 acres

NOTE :—The total of 4,681,930 acres is not an accurate indication of the total area under cultivation since intercropped areas are counted once under each crop concerned, and the same ground may be used during the year for a different crop each season.

Appendix No. 4

Livestock, 1933.

Province and District.	Cattle.	Sheep.	Goats.	Donkeys.	Mules.
BUGANDA :—					
Mengo	70,565	33,656	251,883	...	...
Entebbe	26,467	9,602	58,386	...	...
Masaka	60,749	16,878	39,997	...	...
Mubende	32,088	10,208	87,481	...	...
TOTAL ...	189,869	70,344	437,747	...	...
EASTERN :—					
Busoga	131,045	38,978	236,157	...	...
Budama	83,783	20,013	64,291	33	...
Bugwere	115,857	38,207	125,848	11	...
Bugishu	161,140	75,699	152,773	38	...
Teso	381,128	45,879	121,876	52	...
Karamoja	150,000	160,000	85,000	15,000	3
TOTAL ...	1,022,953	378,776	785,945	15,134	3
NORTHERN :—					
Lango	349,721	108,055	196,841	5	...
Bunyoro	7,937	16,765	65,925	1	...
Gulu	44,431	11,135	32,064	...	...
Chua	43,085	11,091	30,880	...	...
West Nile	129,414	38,982	143,586	...	...
TOTAL ...	574,588	186,028	469,296	6	...
WESTERN :—					
Toro	53,381	41,799	92,274	...	...
Ankole	173,809	92,588	144,038	...	...
Kigezi	92,290	100,000	140,000	...	...
TOTAL ...	319,480	234,387	376,312	...	...
GRAND TOTAL ...	2,106,890	869,535	2,069,300	15,140	3

Appendix No. 5

European Agriculture, 1933.

Province and District.	Number of Estates.	Total Acreage taken up.	Total Acreage cultivated.	Coffee.		Para Rubber	Tea	Cotton	Tobacco	Miscellaneous
				Arabica	Robusta					
				acres.	acres.	acres.	acres.	acres.	acres.	acres.
BUGANDA :—										
Mengo ...	72	33,630	12,219	2,409	4,225	6,923	440	39	...	158
Entebbe ...	15	6,119	2,118	188	603	1,369	75	42	...	...
Masaka ...	20	6,379	949	488	421	200	...	...	...	...
Mubende ...	12	6,355	975	522	150	...	303	...	...	...
TOTAL ...	119	52,483	16,261	3,607	5,399	8,492	818	81	...	158
EASTERN :—										
Busoga ...	7	8,187	615	207	357	15	...	...	...	126
Bugishu ...	1	3,000	31	...	...	...	...	...	...	31
TOTAL ...	8	11,187	646	207	357	15	...	...	...	157
WESTERN :—										
Toro ...	66	24,805	3,113	3,027	45	...	37	10	...	26
NORTHERN :—										
Bunyoro ...	24	13,074	2,910	1,196	729	1,027	...	...	31	...
West Nile ...	2	400	56	50	...	...	...	...	6	...
TOTAL ...	26	13,474	2,966	1,246	729	1,027	...	...	37	...
GRAND TOTAL ...	219	101,949	22,986	8,087	6,530	9,534	855	91	37	341

2,489 acres are interplanted areas.

Returns were received from 153 estates. Returns from the balance of 66 estates, comprising the total of 219 above, were not received. With regard to these 66 estates, figures from previous returns have been included where possible in respect of permanent crops, or the estate has been presumed to have no cultivation.

50 estates in the above, comprising 21,845 acres, have no cultivation.

Appendix No. 6

Asiatic Agriculture, 1933.

Province and District.	Number of Estates.	Total Acreage taken up.	Total Acreage cultivated.	Coffee.		Para Rubber	Sisal	Sugar	Cotton	Miscellaneous
				Arabica	Robusta					
				acres.	acres.	acres.	acres.	acres.	acres.	acres.
BUGANDA :—										
Mengo ...	19	16,055	6,111	180	161	310	...	5,560	25	...
Entebbe ...	8	2,393	...	...	...	...	...	...	...	...
Masaka ...	4	2,404	315	5	90	170	...	38	25	12
Mubende ...	4	1,979	105	...	105	...	...	...	25	...
TOTAL ...	35	22,831	6,531	185	356	480	...	5,598	75	12
WESTERN :—										
Toro	2	585	40	40	...	...	...	...	...	...
NORTHERN :—										
Bunyoro ...	2	5,099	2,100	...	...	...	2,100	...	...	...
EASTERN :—										
Busoga ...	7	13,997	6,192	25	75	700	...	5,417	...	...
GRAND TOTAL ...	46	42,512	14,863	250	431	1,180	2,100	11,015	75	12

1,200 acres are interplanted areas.

Returns were received from 28 estates. Returns from the balance of 18 estates comprising the total of 46 above, were not received. With regard to these 18 estates, figures from previous returns have been included where possible in respect of permanent crops, or the estate has been presumed to have no cultivation.

27 estates in the above, comprising 11,933 acres, have no cultivation.

Statement of Exports from the Uganda Protectorate.

Articles.	Unit of Quantity.	Year ended 31st December, 1929.		Year ended 31st December, 1930.		Year ended 31st December, 1931.		Year ended 31st December, 1932.		Year ended 31st December, 1933.		Position in 1933 as compared with 1932. Increase.		Decrease.	
		Quantity.	£	Quantity.	£	Quantity.	£	Quantity.	£	Quantity.	£	Quantity.	£	Quantity.	£
Maize	*Cwt.*	9,925	3,882	560	128	603	85	1,439	294	1,620	287	181	...	...	7
Other grain	,,	19	18	194	111	1,232	175	120	36	1,423	375	1,303	339	...	...
Pulse and beans	,,	82	54	1,596	844	359	148	341	94	1,823	445	1,482	351	...	...
Meal and flour	,,	917	502	1,554	676	...	...	10	8	1	2	...	...	9	6
Cake, oil seed, other	*Ton*	74	495	206	1,180	37	139	226	831	370	1,293	144	462	...	...
Chillies	*Cwt.*	6,175	26,134	3,078	7,573	2,814	5,515	2,235	3,866	2,791	3,947	556	81	...	...
Coffee, raw	,,	41,199	177,135	48,856	154,996	69,990	161,389	87,077	223,162	100,444	210,638	13,367	...	...	12,524
Ghee	,,	62	475	10	52	23	56	21	71	28	66	7	...	...	5
Salt, other	,,	...	...	...	...	1,192	437	3,460	934	3,879	1,076	419	142	...	...
Sugar, refined	,,	4,276	7,071	6,669	8,719	44,995	46,576	41,049	45,012	144,229	128,802	103,180	83,790	...	...
Tea	,,	12	133	9	84	26	130	117	567	269	1,355	152	788	...	...
Other articles of food and drink	*Value*	...	347	...	399	...	220	...	258	...	505	...	247	...	...
Tobacco and cigarettes	*lb.*	62,081	3,066	144,367	10,949	...	...	...	...	...	...	...	...	...	...
Cigarettes	,,	...	...	...	...	46,474	12,345	67,300	18,190	49,890	13,378	...	...	17,410	4,812
Tobacco, manufactured	,,	...	...	...	...	275	45	6,353	1,045	10,385	1,412	4,032	367	...	...
,, unmanufactured	,,	...	...	...	...	133,322	5,140	153,794	6,925	469,750	16,338	315,956	9,413	...	...
Timber, hewn or sawn	*Cub. ft.*	3,533	1,161	2,501	602	3,697	725	9,738	2,245	15,013	3,382	5,275	1,137	...	...
Tin ore	*Ton*	324	63,900	352	55,300	170	24,436	335	47,168	428	57,503	93	10,335	...	...
Cotton, raw	*Centals of 100 lbs.*	816,228	3,312,668	516,489	1,555,344	755,680	1,503,307	829,303	1,584,172	1,179,315	2,682,210	350,012	1,098,038	...	...
Seed, cotton	*Ton*	67,525	423,999	33,578	137,387	45,435	149,224	56,311	168,366	81,274	262,539	24,963	94,173	...	...
,, sesame	,,	1,339	24,891	1,416	17,963	350	3,799	3,597	43,363	2,659	30,382	...	...	938	12,981
Groundnuts	,,	316	5,413	1,289	15,123	215	2,076	1,455	16,232	325	3,096	...	...	1,130	13,136
Oils, sesame	*Imp. Gall.*	1,678	464	2,522	467	320	48	688	80	2,049	219	1,361	139	...	...
Hides, dry and dry salted	*Cwt.*	35,099	152,543	21,493	49,519	19,799	36,696	15,222	27,682	13,325	20,196	...	...	1,897	7,486
Skins, sheep and goat	*No.*	258,045	12,901	205,200	7,670	130,670	5,226	173,094	6,588	79,700	2,150	...	...	93,394	4,438
,, other animal	,,	78	50	5	10	577	42	415	38	74	17	...	...	341	21
Rubber, plantation, raw	*Centals of 100 lbs.*	8,234	28,818	6,270	16,814	...	...	...	...	...	...	...	...	...	...
Hippopotamus teeth	*Cwt.*	3	17	11	48	5	21	55	405	9	34	...	...	46	371
Ivory, elephant	,,	405	24,758	302	13,633	405	16,184	526	21,547	522	13,290	...	...	4	8,257
Rhinoceros horns	,,	2	640	26	1,619	...	30	2	164	...	98	...	...	2	66
Alumininum hollow-ware	,,	...	...	...	...	1	125	2	303	5	1,116	3	813	...	...
Methylated spirits	*Imp. Gall.*	1,418	288	1,213	218	1,354	254	1,693	238	2,209	303	516	65	...	...
Animals, not for food	*No.*	2	2	22	301	13	5	7	36	...	...	...	...	7	36
Other articles	*Value.*	...	2,933	...	2,724	...	3,274	...	1,488	...	1,804	...	316	...	...
Gold bullion	*Oz. troy.*	...	...	...	...	69	390	569	3,470	1,083	6,352	514	2,882	...	...
Totals		...	4,274,758	...	2,060,453	...	1,978,262	...	2,224,878	...	3,464,610	...	1,303,878	...	64,146

Net Increase ... £1,239,732.

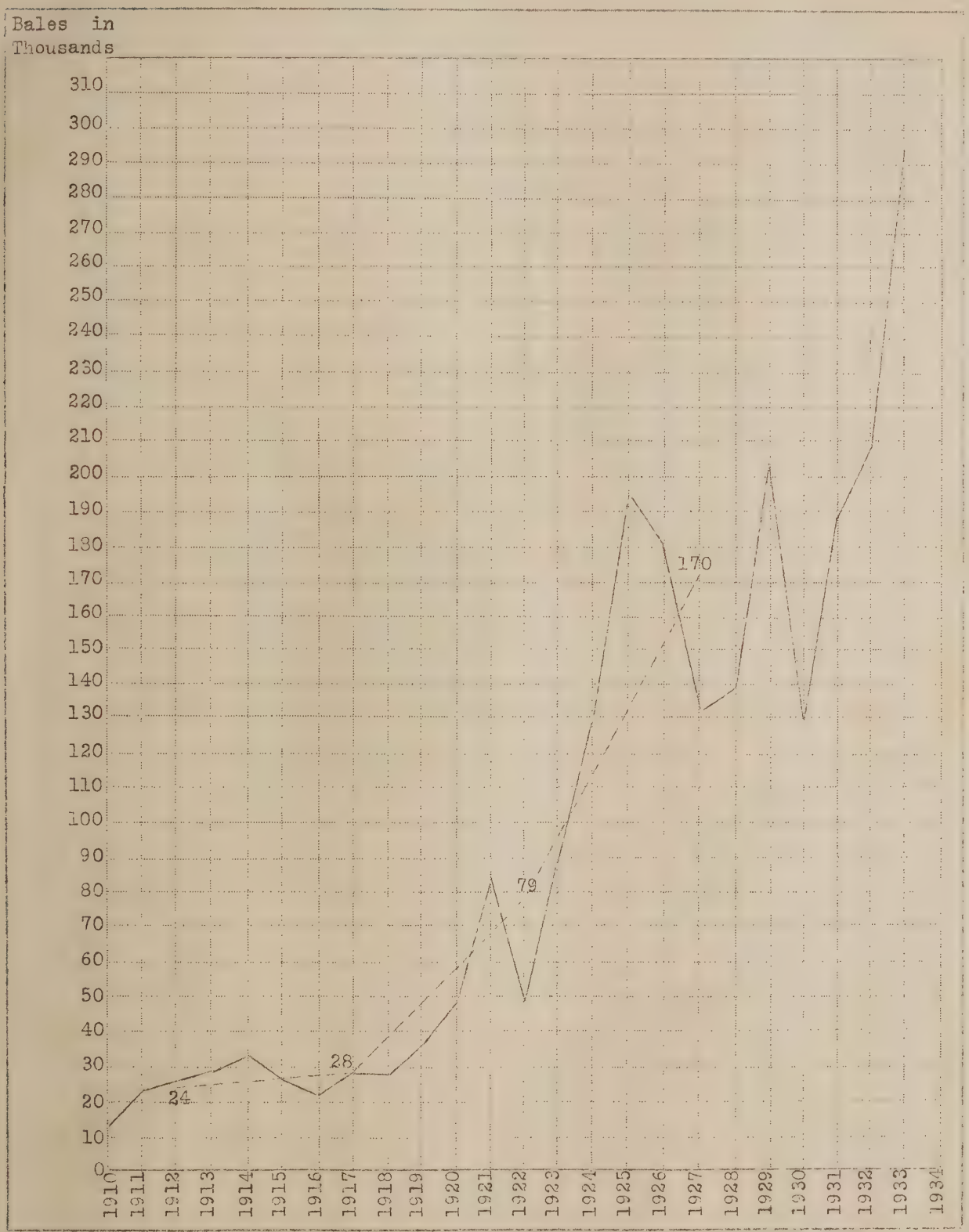
Details of Machinery at Ginneries in the Uganda Protectorate, 1933 Season.

Province and District.	Ginneries.		Gins.				Seed Openers.		Presses.				Engines.					
			Roller.		Saw.				Hand.		Power.		Steam.		Oil.		Suction Gas.	
	Working.	Silent.	Working.	Silent.	Working.	Silent.	Working.	Silent.	Working.	Silent.	Working.	Silent.	Working.	Silent.	Working.	Silent.	Working.	Silent.
Eastern :—																		
Busoga	21	14	366‡	101	...	10	22	9	6	12	16	1	15	8	7	5	...	...
Budama	6	1	97	...	4	5	6	...	1	3	5	...	1	...	4	1	1	...
Bugwere	9	4	138	25	5	12	9	2	...	10	9	...	6	1	2	2	2	1
Bugishu	2	2	29	11	...	4	2	2	...	...	2	2	2	1	...	...	...	1
Teso	16	9	214‡	67	8	5	16	8	3	10	15	2	6	4	1	2	10	3
Total	54	30	844	204	17	36	55	21	10	35	47	5	30	14	14	10	13	5
Buganda :—																		
Mengo	34	11	497‡	89	1	1	35	11	3	9	31	2	21	7	9	2	6	2
Entebbe	8	3	161	24	...	...	10	3	1	2	7	1	10	3	...	...	...	...
Masaka	7	3	117	22	...	2	8	2	...	1	7	...	7	3	...	...	...	...
Mubende	9	4	90‡	32	...	...	9	3	2	4	6	...	10	3	...	1	...	...
Total	58	21	865	167	1	3	62	19	6	16	51	3	48	16	9	3	6	2
Northern :—																		
Lango	10	7	139‡	47	4	7	11	5	2	5	9	2	8	5	2	1	2	1
Bunyoro	4	1	41	1	...	...	3	1	1	1	3	...	3	1	1	..	...	...
Gulu	4	...	42	...	..	...	4	...	2	...	2	...	4	...	...	...	...	...
Chua	2	...	25	...	...	...	2	...	...	...	2	...	2	...	...	...	...	...
West Nile	1	...	10‡	...	...	...	1	...	...	...	1	...	1	...	...	...	...	...
Total	21	8	257	48	4	7	21	6	5	6	17	2	18	6	3	1	2	1
Western :—																		
Toro	1	...	6	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Ankole	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Total	1	1	6	...	...	1	1	...	...	...	...	...	1	1	...	...	...	...
Grand Total	134	60	1,972	419	22	47	139	46	21	57	115	10	97	37	26	14	21	8
	194		2,391		69		185		78		125		134		40		29	

‡ Includes Double Roller Gins : Busoga 11 ; Teso 12 ; Mengo 1 ; Mubende 3 ; Lango 20 ; West Nile 10. Total = 57.

U G A N D A C O T T O N P R O D U C T I O N G R A P H

B A S E D O N E X P O R T R E T U R N S.



Yearly Exports in Bales of 400 lbs. Net. ————————

Average Production in 5 year Periods, ending with 1929 — — — — — —

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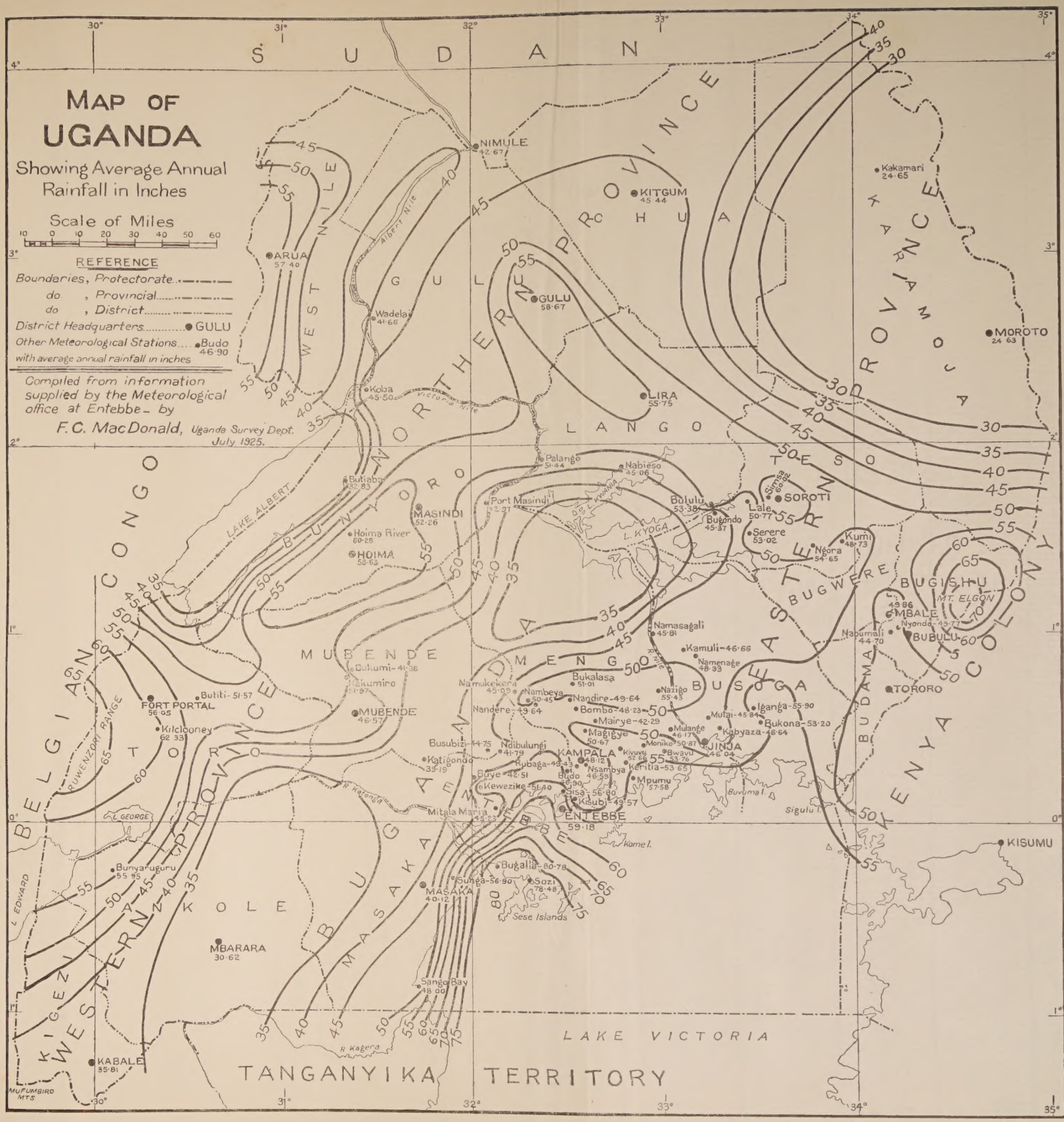
MAP OF
UGANDA
Showing Average Annual Rainfall in Inches
Scale of Miles
10 0 10 20 30 40 50 60
REFERENCE
Boundaries, Protectorate
do , Provincial
do , District
District Headquarters ● GULU
Other Meteorological Stations ● Budo 46·90
with average annual rainfall in inches
Compiled from information supplied by the Meteorological office at Entebbe – by
F.C. MacDonald, Uganda Survey Dept. July 1925.
SUDAN
KENYA COLONY
TANGANYIKA TERRITORY
BELGIAN CONGO
LAKE VICTORIA
NIMULE 42·67
ARUA 57·40
Wadela 41·66
Koba 45·50
GULU 58·67
KITGUM 45·44
Kakamari 24·65
MOROTO 24·63
LIRA 55·75
Palango 51·44
Nabieso 45·06
Butiaba 32·83
MASINDI 52·26
Hoima River 60·26
HOIMA 58·63
Port Masindi 42·97
Bululu 53·38
Bugondo 45·37
Lale 50·77
SOROTI 53·68
Serere 53·02
Ngora 54·65
Kumi 48·73
MBALE 49·86
Nyondo 49·77
BUGISHU
MT. ELGON
BUBULU 44·70
Namasagali 45·81
Kamuli 46·66
Namenage 48·33
Bukalasa 51·01
Namukekera 45·09
Nambeya 50·45
Nandire 49·64
Bomba 48·23
Mairye 42·29
Magiye 50·67
Mulange 46·17
Mutai 45·84
Iganga 55·90
Bukona 53·20
Kabyaza 48·64
TORORO
Nabumali 44·70
BUDAMA
BUSOGA
BUGWERE
Bukumi 41·36
Nakumiro 51·97
Butiti 51·57
FORT PORTAL 56·05
MUBENDE 46·57
Kilcloonev 62·33
RUWENZORI RANGE
Busubizi 44·75
Nabulunei 41·79
KAMPALA 48·12
Kivuvu 52·55
Bwavu 53·76
Kawempe 46·04
JINJA 57·58
Katigondo 39·19
Rubaga 49·43
Nsamboya
Budo 46·90
Keritia 53·65
Mpumu 57·58
Buye 42·51
Kewezike 51·40
Sisa 56·60
Kisubi 49·57
Buvuma I.
Sigulu I.
Mitala Maria 45·23
ENTEBBE 59·18
Kome I.
L. GEORGE
L. EDWARD
Bunyaruguru 55·95
MASAKA 40·12
Bugalla 80·78
Sunga 56·90
Sozi 78·48
Sese Islands
MBARARA 30·62
Bango Bay 48·00
KABALE 35·81
MUFUMBIRO MTS
KISUMU
R. Kagera
R. Katonga
Victoria Nile
Albert Nile
LAKE ALBERT
L. KYOGA
L. KWANIA
WEST NILE
NORTHERN PROVINCE
BUNYORO
TOORO
ANKOLE
MASAKA
MENGO
KIGEZI
WESTERN PROVINCE
KARAMOJA
EASTERN PROVINCE

BRITISH EAST AFRICAN METEOROLOGICAL SERVICE